Phase II Efficacy Study of Aerolized Recombinant IL-4 Receptor in Asthma

Asthma

- In the U.S. 14 million people have asthma.
- The number of people with asthma is increasing every year.

Current Treatments

- There are numerous treatments for asthma.
- However, current treatments for asthma pose concerns, typically serious side effects.
- There is a need for improved treatments.

Il-4

- Allergic reactions are an important contributing cause of asthma.

- IL-4 plays a key role in allergic reactions, promoting B-cell secretion of IgE, up-regulating response molecules, and promoting cytokines and mucus secretions.

Potential New Treatment

- Removal of IL-4 might offer an important new treatment for asthma.

- IL-4 receptor binds and, thereby, neutralizes IL-4.

Experience with inhaled IL-4R

- 69 people have received inhaled IL-4 receptor.
- 1 Grade 3 toxicity—asthma attack
- 1 Grade 1 toxicity—headache and pulmonary complaints

Study Objectives

Primary objective: to evaluate whether inhaled IL-4 receptor can remove IL-4 and increase FEV_1 in asthma patients.

Secondary objectives: to evaluate the impact of IL-4 receptor on FVC, use of beta-agonist, symptom score, and quality of life.

Accrual Goals

- 180 subjects
- 83% power to detect an 8% greater increase in mean FEV_1 among those patients using IL-4R compared to placebo.

Inclusion Criteria

- 12-85 years of age
- Asthma for more than 1 year
- Symptoms 3x/week with albuterol alone
- FEV_1 of 50-70% of normal, or 71-80% of normal if receiving beta-agonist therapy
- No investigational drugs in the past 60 days.

Inclusion of Children

- Great need for new treatments for children
- Asthma is a serious problem in children
- Study offers potential benefit for children who are being treated suboptimally

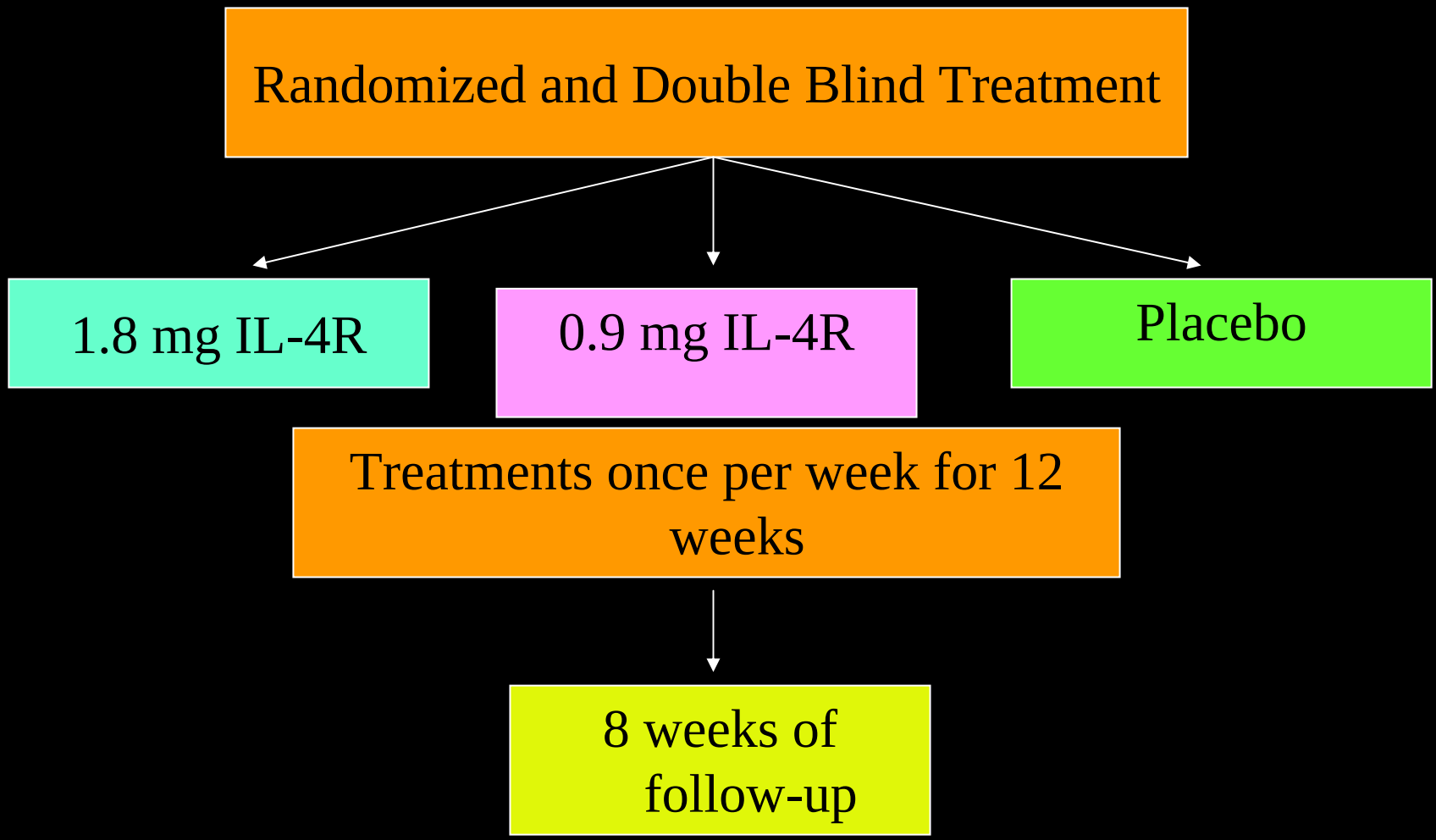
Wash Out Period

- No oral or parenteral steroids for 8 weeks prior to the study.
- No inhaled steroids for 4 weeks prior to the study.
- No cromolyn for 4 weeks prior to the study.
- No theophylline for 4 weeks prior to the study.

Baseline Evaluation

- Medical history and physical examination
- CBC, chemistry profile, urinalysis, pregnancy test
- EKG
- Chest X-ray
- Prick skin test—2 antigens identified
- Spirometry
- Baseline symptom assessment

Study Design



Drug Modifications

- No dose reductions allowed.
- If a Grade 3 toxicity occurs, the drug will be discontinued for one week, and resumed if the toxicity resolves.
- If Grade 3 toxicity recurs, the subject will be removed from the study.

Sample Collection

- Blood will be collected for a cell bank to assess asthma related polymorphisms
- Subjects may refuse storage of blood and still participate

Day 0

- Blood tests including IgE, anti IL-4R levels and antibody levels, cells bank, serum allergy profile
- Administration of aerolized IL-4R
- Vital signs and spirometry 1 and 2 hours after administration of IL-4R

Days 1 & 2

- Physical examination
- Spirometry

Days 7, 14, 21, 28, 35, 42, 49, 63, 70, 77

- Physical examination
- Administration of IL-4R
- Spirometry
- Blood tests for IL-4R
- Asthma quality of life questionnaire and symptom assessment.
- On Day 28 and 56—CBC, Chemistry panel, urinalysis

Day 84

- Physical examination and vital signs
- Spirometry
- Asthma quality of life questionnaire and symptom assessment.
- CBC, chemistry panel, urinalysis.
- IgE, anti IL-4R levels and antibody levels, cells bank, serum allergy profile
- Sputum

Follow-up

- Spirometry and serum IL-4R levels at follow-up days 7, 14, 28, and 56.

- Day 28 full examination, CBC, chemistry profile, urinalysis, IgE, anti IL-4R levels and antibody levels, cells bank, serum allergy profile

Compensation

- Study participants will receive up to $1,460 for completion of the whole study.
- If participants do not complete the whole study, payment will be prorated.
- Subjects who complete all requirements for Day 0 receive $250.